

11 South Meridian Street Indianapolis, IN 46204 (317) 236-1313 (317) 231-7433 Fax

X THE UNITED STATES PATENT AND TRADEMARK OFFICE

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3747

Confirmation No.:

4079

Application No.:

10/612,313

Invention:

METHOD AND APPARATUS FOR GENERATING PRESSURIZED AIR

BY USE OF REFORMATE GAS FROM A FUEL REFORMER

Applicant:

Dennis A. Kramer et al.

Filed:

July 2, 2003

Attorney

Docket:

9501-72760

Examiner:

Unknown

Certificate Under 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

on 10310

(Signature)

Karla I. Mays

(Printed Name)

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

This statement is filed in the application identified above pursuant to 37 C.F.R. § 1.56. This statement supplements an electronic statement filed on October 31, 2003, which cited one hundred twenty-two (122) U.S. patent references. No representation is intended that a complete search has been made of the prior art or that no better art references than listed below are available. A copy of each reference is provided for review by the Examiner. The filing of this Statement shall not be construed to be an admission that the information cited in the Statement is, or is considered to be, material to patentability as defined in §1.56(b).

Please charge any fees that might be due in connection with this Supplemental Information Disclosure Statement to our Deposit Account No. 10-0435. An extra copy of this Supplemental Information Disclosure Statement is enclosed for that purpose.

Respectfully submitted,

BARNES & THORNBURG

Shawn D. Bauer

Attorney Reg. No. 41,603

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	AL	WO 00/26518A1	May 11, 2000	PCT			X
	AM	WO 01/14702 A1	Mar. 1, 2001	PCT			X
	AN	WO 01/14698 A1	Mar. 1, 2001	PCT			X
	AO	WO 01/33056 A1	May 10, 2001	PCT			Х
	AP	WO 94/03263A1	Feb. 17, 1994	PCT			X
		OTHER REFERENCES	(Including Author,	Title, Date, Pertiner	nt Pages, E	tc.)	-
	AR	Jahn, "Physics of Electric Pro	pulsion", pp. 126-1	130 (1968).			
	AS	Belogub et al., "Petrol-Hydrog 16, No. 6, pp. 423-426 (1991)	en Truck With Loa	ad-Carrying Capacity	5 Tons", Ir	nt. J. Hydroge	n Energy, Vol.
	AT	Breshears et al., "Partial Hydr Symposium on Low Pollution	ogen Injection Into				
	AU	Chuveliov et al., "Comparison on Their Damage to Population	of Alternative End	ergy Technologies U	tilizing Foss	il Fuels and F	lydrogen Based
	AV	Correa, "Lean Premixed Com Fuel Combustion, ASME, pp.	bustion for Gas-Tu				
	AW	Czernichowski et al., "Multi-El Some Waste Gas and Vapor	ectrodes High Pre		arge Reacto	or and its Appl	ications for
	AX	Das, "Exhaust Emission Char			aine Systen	n: Nature of F	Pollutants and
		their Control Techniques", Int.	J. Hydrogen Ener	rgy, Vol. 16, No. 11,	pp. 765-77	5 (1991).	
	AY	Das, "Hydrogen Engines: A V No. 6, pp. 425-443 (1990).	riew of the Past ar	nd a Look into the Fu	iture", Int. J		
Examiner						Date Consi	dered
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	BL	WO 96/24441A2	Aug. 15, 1996	PCT			Х
	вм	WO 98/45582A1	Oct. 15, 1998	PCT			Х
	BN	WO 95/06194A1	Mar. 2, 1995	PCT			Х
	во	WO 85/00159A1	Jan. 17, 1985	PCT			X
	BP	EP 0485922A1	May 20, 1992	EPO			X(Abstract Only)
		OTHER REFERENCES	(Including Author,	Title, Date, Pertinen	t Pages, Et	tc.)	<u></u>
	BR	Das, "Fuel Induction Technique 11, pp. 833-842 (1990).	es for a Hydroger	Operated Engine", I	Int. J. of Hy	drogen Energ	y", Vol. 15, No.
	BS	DeLuchi, "Hydrogen Vehicles: and Cost", Int. J. Hydrogen Er				fety, Environn	nental Implants
	BT	Duclos et al., "Diagnostic Stud 2513 (November 1963).	dies of a Pinch Pla	sma Accelerator", Al	AA Journal		
	BU	Feucht et al., "Hydrogen Drive Energy, Vol. 13, No. 4, pp. 24	3-250 (1988).				
	BV	Finegold et al., "Dissociated N Proceedings of the 4 th World H	lethanol as a Con- lydrogen Energy	sumable Hydride for Conference, Vol. 3, p	Automobile p. 1359-13	es and Gas Tu 69 (June 13-1	ırbines", 17, 1982).
	BW	Hall et al., "Initial Studies of a	New Type of Ignit	or: The Railplug" - P	aper 91231	19, pp. 1730-1	746 (1991).
	BX	Houseman et al., "Hydrogen E Energy Conf., pp. 949-968 (19		Liquid Fuels, A Revi	ew", G.E.,	Proc., 3 rd Wor	ld Hydrogen
	BY	Houseman, et al., "Two Stage Automobile Engineering Meet	Combustion for L				Society of
	BZ	Jones, et al., "Exhaust-Gas Re 931086, pp. 223-234 (1993).					ers, Paper
Examiner						Date Consid	dered
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	CL	EP 0153116A2	Aug. 28, 1985	EPO			X	
	СМ	EP 0096538B1	Dec. 21, 1983	EPO			X	
	CN	FR 2593493A1	Jul. 31, 1987	France			X(Abstract Only)	
	CO	FR 2620436A1	Mar. 17, 1989	France			X(Abstract Only)	
	CP	DE 19644864A1	May 7, 1998	Germany			X(Abstract Only)	
	_	OTHER REFERENCES			-	•		
	CR	Kaske et al., "Hydrogen Produ Proceedings of the 6th World	Hydrogen Energy	Conference, Vol. 1, p	p. 185-190) (July 20-24,	1986).	
	CS	MacDonald, "Evaluation of Hy Engine", Society of Automotiv					i-Cylinder	
	СТ	Mackay, "Development of a 2- pp. 99-105, NoMac Energy Sy		-Driven Generator Se	et for Hybrid	d Vehicles", P	aper 940510,	
	CU	Mackay, "Hybrid Vehicle Gas	Turbines", Paper 9	930044, NoMac Ener	gy System	s, Inc., pp. 35	-41.	
	CV	Matthews et al., "Further Anal (1992).	ysis of Railplugs a	s a New Type of Igni	tor", Paper	922167, pp.	1851-1862	
	CW	Mishchenko et al., "Hydrogen Vol. 3, pp. 2037-2056 (1988).	as a Fuel for Road	d Vehicles", Proc. VII	World Hyd	Irogen Energy	Conference",	
	СХ	Monroe et al., "Evaluation of a	a Cu/Zeolite Cataly . 195-203 (1993).	st to Remove NO _x fro	om Lean E	xhaust", Socie	ety of Automotive	
	Engineers, Paper 930737, pp. 195-203 (1993). CY Rabinovich et al., "On Board Plasmatron Generation of Hydrogen-Rich Gas for Engine Pollution Reduction", Proceedings of NIST Workshop on Advanced Components for Electric and Hybrid Electric Vehicles, pp. 83-88 (October 1993) (not published).					on Reduction", chicles, pp. 83-88		
Examiner					<u> </u>	Date Consid	dered	
		if reference considered, whethe itation if not in conformance and					ation to applicant.	

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SERIAL NO. ATTY. DOCKET NO. U.S. DEPARTMENT OF 9501-72760 10/612,313 PATENT AND TRADEMARK OFFICE APPLICANT Dennis A. Kramer et al. SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT GROUP **FILING DATE** July 2, 2003 3747 U.S. PATENT DOCUMENTS Filing Date *Examiner **Document Number** Date Class Subclass Name if Appropriate Initial DA DB DC DD DE DF DG DH DI DJ DK FOREIGN PATENT DOCUMENTS Translation **Document Number** Country Class Subclass Date Yes No DL DE 19510804A1 Sep. 26, 1996 Germany X(Abstract Only) DM DE 19757936A1 Jul. 8, 1999 Germany X(Abstract Only) DN DD 237120A1 Jul. 2, 1986 Germany (East) X(Abstract Only) DO DE 3048540A1 Jul. 22, 1982 Germany X(Abstract Only) United Kingdom DP GB 1221317 Feb. 3, 1971 X(Abstract Only) OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.) Rabinovich et al., "Plasmatron Internal Combustion Engine System for Vehicle Pollution Reduction", Int. J. of DR Vehicle Design, Vol. 15, Nos. 3/4/5, pp. 234-242 (1994). Scott et al., "Hydrogen Fuel Breakthrough with On-Demand Gas Generator", 372 Automotive Engineering, DS Vol. 93, No. 8, pp. 81-84 (Aug. 1985). DT Shabalina et al., "Slag Cleaning by Use of Plasma Heating", pp. 1-7. Handbook of Thermodynamic High Temperature Process Data, "Conversion of Hydrocarbons and Production DU of Reducing Gases in the C-H-O and C-H-O-N Systems", Chapter Nine, pp. 507-547. DΛ Varde et al., "Reduction of Soot in Diesel Combustion with Hydrogen and Different H/C Gaseous Fuels", Hydrogen Energy Progress V, pp. 1631-1639. DW Wang et al., "Emission Control Cost-Effectiveness of Alternative-Fuel Vehicles", Society of Automotive Engineers, Paper 931786, pp. 91-122 (1993). Wilson, "Turbine Cars", Technology Review, pp. 50-56 (February/March, 1995). DX Kirwan et al., "Fast Start-Up On-Board Gasoline Reformer for Near Zero Emissions in Spark-Ignition DY Engines", Society of Automotive Engineers 2002 World Congress, Paper No. 2002-01-1011, 14 pgs. (March 4-7, 2002) Kirwan et al., "Development of a Fast Start-up O Gasoline Reformer for Near Zero Spark-Ignition Engines", DZ Delphi Automotive Systems, pp. 1-21 (2001). Examiner **Date Considered** *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609.

Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Sheet <u>5</u> of <u>8</u>

U.S. DEPARTMENTED OMMERCE PATENT AND TRADEMARK OFFICE SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT		ATTY. DOCKET NO. 9501-72760 10/612,313 APPLICANT Dennis A. Kramer et al. FILING DATE GROUP 3747					
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	EL	GB 355210	Feb. 17, 1930	United Kingdom			Х
	EM	GB 2241746A	Sep. 11, 1991	United Kingdom			X
	EN	JP 05231242A2	Sept. 7, 1993	Japan			X(Abstract Only)
	EO	JP 07292372A2	Nov. 7, 1995	Japan			X(Abstract Only)
	EP	JP 02121300A2	May 9, 1990	Japan			X(Abstract Only)
		OTHER REFERENCES				-	
	ER	Chandler, "Device May Spark	Clean-Running C	ars", The Boston Glo	be, p. E1, 2	2 pgs. (July 12	2, 1999).
	ES	Simanaitis, "Whither the Auto	mobile?", Road an	d Track, pp. 98-102 ((Septembe	r 2001).	
	ET	Shelef et al., "Twenty-five Yea pp. 35-50 (2000).	ars after Introducti	on of Automotive Ca	talysts: Wi	hat Next?" Ca	talysis Today 62,
EU Stokes et al., "A Gasoline Engine Concept for Improved Fuel Economy - The Lean Boost System", International Falls Fuels and Lubricants Meeting and Exposition, SAE Technical Paper Series, 14 pgs. (October 16-19, 2000).							
	EV	Tachtler et al., "Fuel Cell Au Society of Automotive Engine					assenger Cars?",
	EW	Bromberg et al., "Experimenta a Compact Plasma Boosted F Center Report, JA-99-32, 9 pg	Reformer", Massac				
	EX	Bromberg et al., "Compact Plant. J. of Hydrogen Energy 24			n Technolo	ogy for Vehicu	ılar Applications",
Examiner						Date Consi	dered
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	FL	JP 5127630 A2	May 25, 1993	Japan			X(Abstract Only)
	FM	SU 1519762A1	Nov. 7, 1989	Soviet Union			X(Abstract Only)
	FN	GB 1014498	Dec. 31, 1965	United Kingdom			X
	FO	GB 2188559A	Oct. 7, 1987	United Kingdom			X
	FP	DE 3337903A1	May 9, 1985	Germany			Х
		OTHER REFERENCES	(Including Author,	Title, Date, Pertinent	Pages, Et	c.)	
	FR	Bromberg et al., "Emissions R Hydrogen Energy 26, pp. 111	5-1121 (2001).				
	FS	Burch et al., "An Investigatio Under Lean-Burn Conditions,"	' Applied Catalysis	B: Environmental 23	, pp. 115-1	21 (1999).	•
	FT	Costa et al., "An Investigatio Pt/La _{0.7} Sr _{0.2} Ce _{0.1} FeO ₃ Catalys	n of the NO/H ₂ /O	2 (Lean De-No _x) Resturce", Catalysis 200	action on a	a Highly Activ	ve and Selective
	FU	Frank et al., "Kinetics and Med					rn Conditions on
		a Pt-Mo-Co/ά-A1 ₂ O ₃ Catalyst"	', Applied Catalysis	s B: Environmental 19			
	FV	Gore, "Hydrogen A Go-Go", D					
	FW	Koebel et al., "Selective Cata 239-247 (2002).				_	•
	FX	Nanba et al., "Product Analysi of Catalysis 211, pp. 53-63 (20	002).				
	FY	Vairex Corporation, "Evaluation (FCPS)", pp. 1-8	on of Vairex Air S	System Technology for	or Automo	bile Fuel Cell	Power Systems
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GN WO 96/27078A1	Sept. 6, 1996	PCT			Х
GO JP 54-74419	June 12, 1979	Japan			Х
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	НМ	EP 1057998A1	May 5, 2000	EPO			X(Abstract Only)
	HN	JP 3-195305	Aug. 26, 1991	Japan			X(Abstract Only)
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